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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
LEE, CHUN KUAN	

ART UNIT	PAPER NUMBER
2181	

NOTIFICATION DATE	DELIVERY MODE
11/21/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/777,368	RITZ ET AL.	
	Examiner	Art Unit	
	Chun-Kuan (Mike) Lee	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-17 and 19-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-17 and 19-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

CONTINUED EXAMINATION UNDER 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/30/2007 has been entered.

RESPONSE TO ARGUMENTS

2. Applicant's arguments filed 10/30/2007 have been fully considered but they are not persuasive. Currently, claims 6 and 18 are canceled, and claims 1-5, 7-17 and 19-22 are pending for examination.

3. In response to applicant's arguments, on page 8, 1st paragraph, regarding the amended independent claim 1 rejected under 35 U.S.C. 103(a) that the combination of references does not teach the amended claimed limitations associated with providing both allow and disallow access information including access type within a single field; applicant's arguments have fully been considered, but are not found to be persuasive.

Please note that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re*

Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The examiner respectfully disagrees, because of the following:

Safranek teaches disallow access information ([0011]-[0021]).

Kondratiev teaches allow access information including access type (e.g. read, write) within a single field (Fig. 2, ref. 210) (col. 4, ll. 40-65).

Additionally, as the applicant applied similar arguments presented above for the amended independent claim 1 towards amended independent claims 14, 17, 21 and 22; the examiner will also apply the same response as presented above towards amended independent claims 14, 17, 21 and 22.

I. INFORMATION CONCERNING OATH/DECLARATION

Oath/Declaration

4. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in **37 C.F.R. 1.63.**

II. INFORMATION CONCERNING DRAWINGS

Drawings

5. The applicant's drawings submitted are acceptable for examination purposes.

III. REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-5, 7-17 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Safranek et al. (US Pub 2004/0193755) in view of Kondratiev et al. (US Patent 6,922,740).

7. As per claims 1,14, 17 and 21-22, Safranek teaches a direct memory access memory corruption detection system and method embodied in a computer readable medium comprising the following computable executable components:

receiving a request for a direct memory access transaction, the request comprising a least one memory address ([0014]-[0021]);

a memory controller (northbridge 117 of Fig. 1) that includes an access table (access data) that stores access information (access information stored in NoDMA table 103 and NoDMA cache 109 of Fig. 1) associated with memory (Fig. 1, ref. 101), wherein the access information comprising at least one access attribute, an access attribute distinguishes no access to indicate no access ([0011]-[0021]; [0034] and [0038])

the memory controller employs the access information and the request to determine whether the requested direct memory access is permitted and rejects the requested direct memory access if it is not permitted ([0014]-[0016]); and

a data field comprising a corrected platform error event ([0034] and [0038]), the corrected platform error event being based, at least in part, upon a determination that a requested direct memory access is not permitted ([0034] and [0038]), the determination being based, at least in part, upon access information stored in an access table (NoDMA table cache in Fig. 3) and the requested direct memory access ([0011]-[0021]).

Safranek does not teach the direct memory access memory corruption detection system and method comprising:

a source identifier and a transaction access attribute;

wherein the access information comprising at least one source identifier and at least one memory address,

the access attribute distinguishes from amongst (between) read, read and write and write ... ; and

a device driver ... .

Kondratiev teaches a system and a method comprising:

a request including a source identifier (e.g. device ID) and a transaction access attribute (e.g. read, write) (Fig. 2 and col. 3, l. 51 to col. 4, l. 65);

an access information comprising at least one source identifier (e.g. device ID) and at least one memory address (e.g. read access with memory address range, write access with memory address range) (Fig. 2, ref. 210 and col. 4, ll. 40-65),

an access attribute distinguishes from amongst (between) read, read and write and write to indicate read, read and write or write a combination of source and memory range identified by a source identifier (e.g. device ID) associated with the access attribute and a memory address associated with the access attribute (Fig. 2, ref. 210 and col. 4, ll. 40-65); and

a device driver (e.g. bus master) that programs (e.g. program by invoking a function to request DMA access) the device for a direct memory access operation, and, provides the access information to the memory controller via a direct memory access application interface (col. 4, ll. 6-26 and col. 6, ll. 43-53).

It would have been obvious to one of ordinary skill in this art, at the time of invention was made to include Kondratiev's device ID, read and write access attribute with memory address range and the bus master into Safranek's DMA memory corruption detection system for the benefit of increase security and reliability for accessing DMA (Kondratiev, col. 7, ll. 30-41) to obtain the invention as specified in claims 1,14, 17 and 21-22.

8. As per claims 2-3, Safranek and Kondratiev teach all the limitation of claim 1 as discussed above, where Kondratiev further teaches the direct memory access memory corruption detection system comprising the access information comprising a direct memory access request, and wherein the direct memory access request comprising a transaction type (e.g. read-write access) (Kondratiev, Fig. 2 and col. 4, ll. 23-26).

9. As per claims 4-5, Safranek and Kondratiev teach all the limitation of claim 1 as discussed above, where Kondratiev further teaches the direct memory access memory corruption detection system comprising the direct memory access request comprising a source identifier (e.g. device ID), and wherein the source identifier being associated with a device (I/O device 140-1 of Fig. 1 and device ID of Fig. 2) (Kondratiev, col. 4, ll. 40-65).

10. As per claim 7, Safranek and Kondratiev teach all the limitation of claim 1 as discussed above, where Safranek further teaches the direct memory access memory corruption detection system comprising wherein the access information comprising at least one permitted memory address (Safranek, [0014] and [0021]), wherein certain segments of the memory do not have access restriction, therefore request for access are allowed.

11. As per claim 8, Safranek and Kondratiev teach all the limitation of claim 1 as discussed above, where Safranek further teaches the direct memory access memory corruption detection system comprising wherein the access information comprising at least one disallowed memory address (Safranek, [0014] and [0021]), wherein certain segments of the memory have access restriction, therefore request for access are denied.

12. As per claim 9, Safranek and Kondratiev teach all the limitation of claim 1 as discussed above, where Safranek further teaches the direct memory access memory corruption detection system comprising wherein the request comprising a read action or a write action (Safranek, [0015]).

13. As per claim 10, Safranek and Kondratiev teach all the limitation of claim 1 as discussed above, where Safranek further teaches the direct memory access memory corruption detection system comprising wherein the request comprising a peripheral component interface express bus transaction (Safranek, [0017] and [0019]).

14. As per claim 11, Safranek and Kondratiev teach all the limitation of claim 1 as discussed above, where Safranek further teaches the direct memory access memory corruption detection system comprising wherein the memory controller coupled to a device through a peripheral component interface express bus, the device providing the request (Safranek, [0017] and [0019]).

15. As per claim 12, Safranek and Kondratiev teach all the limitation of claim 1 as discussed above, where Safranek further teaches the direct memory access memory corruption detection system comprising wherein the memory controller further providing error information, if the requested direct memory access is not permitted (Safranek, Fig. 4; [0034] and [0038]), wherein the error is logged and can be utilized for subsequent analyzing.

16. As per claim 13, Safranek and Kondratiev teach all the limitation of claim 12 as discussed above, where Safranek further teaches the direct memory access memory corruption detection system comprising the error information comprising source information associated with the requested direct memory access (Safranek, Fig. 4; [0034] and [0038]).

17. As per claim 15, Safranek and Kondratiev teach all the limitations of claim 14 as discussed above, where Kondratiev further teaches the direct memory access memory corruption detection system further comprising the stored access information comprising a range of physical memory (access range), a source identifier (device ID), and an access attribute (read and write) (Kondratiev, Fig. 2).

18. As per claim 16, Safranek and Kondratiev teach all the limitations of claim 14 as discussed above, where Safranek teaches the direct memory access memory corruption detection system comprising wherein the request comprising a peripheral component interface express bus transaction (Safranek, [0017] and [0019]).

19. As per claim 19, Safranek and Kondratiev teach all the limitations of claim 17 as discussed above, where Kondratiev further teaches the method that facilitates detection of direct memory access memory corruption comprising storing access information in a access data store, the access information comprising a source identifier (device ID), at

least one memory address (access range) and an access attribute (read and write) (Kondratiev, ACL 210 Fig. 2).

20. As per claim 20, Safranek and Kondratiev teach all the limitations of claim 17 as discussed above, where Safranek further teaches the method that facilitates detection of direct memory access memory corruption comprising a computer readable medium having stored thereon computer executable instructions for carrying out the method (Safranek, [0039]).

IV. CLOSING COMMENTS

Conclusion

a. STATUS OF CLAIMS IN THE APPLICATION

The following is a summary of the treatment and status of all claims in the application as recommended by **M.P.E.P. 707.07(i)**:

a(1) CLAIMS REJECTED IN THE APPLICATION

Per the instant office action, claims 1-5, 7-17 and 19-22 have received a first action on the merits and are subject of a first action non-final.

b. DIRECTION OF FUTURE CORRESPONDENCES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun-Kuan (Mike) Lee whose telephone number is (571) 272-0671. The examiner can normally be reached on 8AM to 5PM.

IMPORTANT NOTE

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alford Kindred can be reached on (571) 272-4037. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

November 09, 2007

Chun-Kuan (Mike) Lee
Examiner
Art Unit 2181

ALFORD KINDRED
SUPERVISORY PATENT EXAMINER